

What is claimed is:

1. A laser apparatus comprising:

a plurality of semiconductor laser elements  
which emit laser beams, respectively:

5 a multimode optical fiber which has a  
light-entrance end and a light-emission end;

10 an optical condensing system which collects  
the laser beams emitted from said plurality of  
semiconductor laser elements, and couples the collected  
laser beams to said light-entrance end of said multimode  
optical fiber; and

15 a protection member which is arranged at said  
light-emission end of the multimode optical fiber,  
protects the light-emission end from an atmosphere, and  
has a light-emission window located at at least a  
predetermined distance from the light-emission end.

2. A laser apparatus according to claim 1, wherein  
said protection member is made of a transparent material,  
and comprises a first face fixed to said light-emission  
end of said multimode optical fiber and a second face  
20 being located opposite to the first face and realizing  
said light-emission window.

25 3. A laser apparatus according to claim 1, wherein  
said protection member is a sealed container which is  
fixed to said multimode optical fiber in a vicinity of  
said light-emission end so that the sealed container

contains the light-emission end, said sealed container having a glass window being located opposite to the light-emission end to realize said light-emission window, and inert gas being sealed in the container.

5       4. A laser apparatus according to claim 1, wherein said protection member is a sealed container which is fixed to said multimode optical fiber in a vicinity of said light-emission end, said sealed container having an inlet port, an outlet port, and a glass window, the inlet port and the outlet port being connected to a gas circulation system for circulating inert gas through the sealed container, and the glass window being located opposite to the light-emission end to realize said light-emission window.

10      15     5. A laser apparatus according to claim 4, wherein said gas circulation system comprises a filter for removing contaminants contained in gas discharged from said outlet port.

20      6. A laser apparatus according to claim 1, wherein said multimode optical fiber has a core diameter of 100 micrometers or smaller at said light-emission end.

7. A laser apparatus according to claim 1, wherein said plurality of semiconductor laser elements are made of GaN-based compound semiconductor materials.